1. General Pharmacology

Questions 1.1 - 1.42

For Each of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate.

1.1 Which of the following drugs is produced by recombinant DNA technology (genetic engineering)?

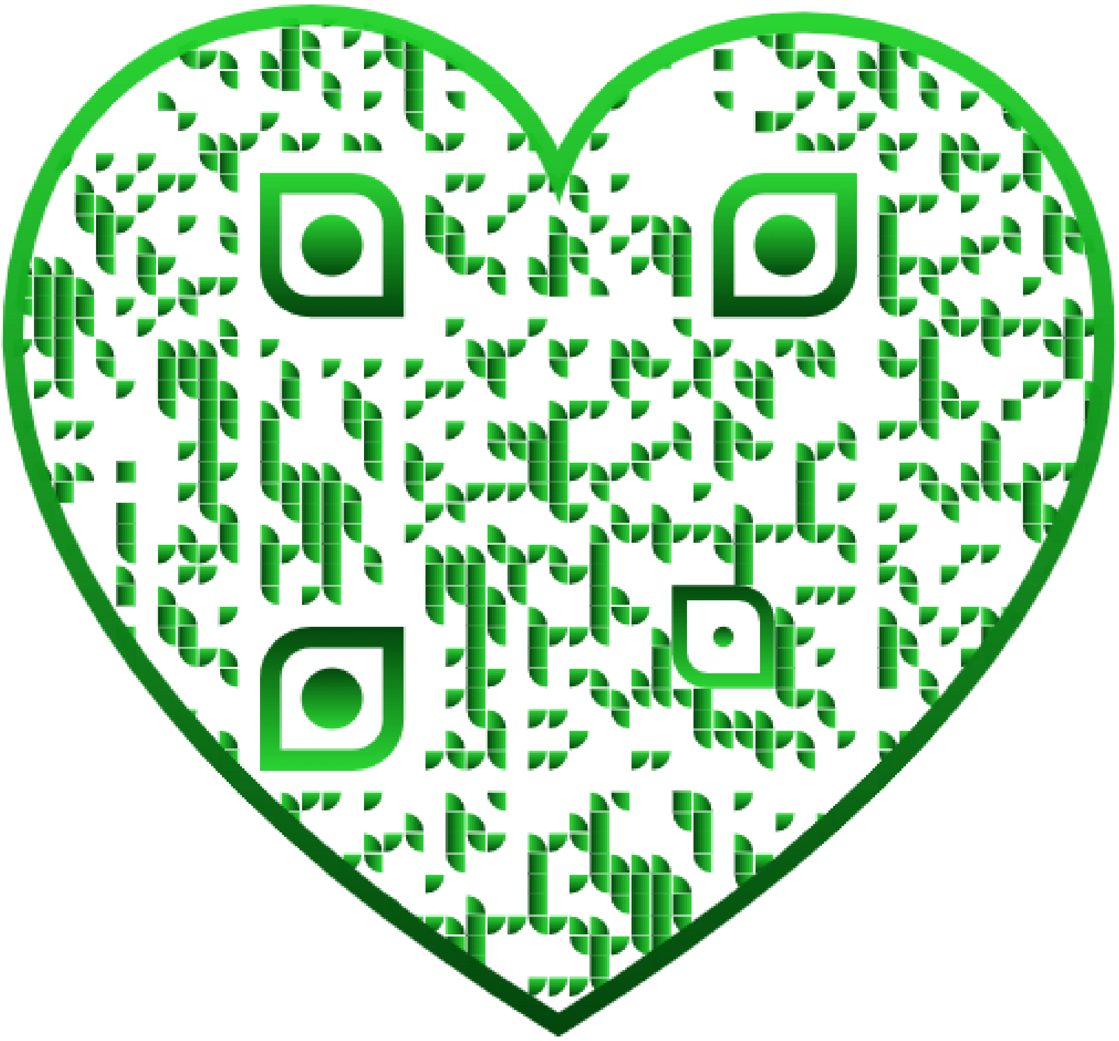
A. Atropine
B. Digoxin
C. Aspirin
D. Tissue Plasminogen Activator (t-PA)
E. Heparin

1.2 Which of the following compounds produces its actions by binding to intracellular receptors that bind to nuclear DNA to regulate gene expression ?

A. Insulin
B. Adrenaline
C. Glucagon
D. Gamma-Aminobutyric Acid (GABA)
E. Vitamin D

1.3 Each of the following drugs is correctly matched with an appropriate mechanism of action **EXCEPT**

A. Local anaethetics - blocking Na^+ channels
B. Mannitol - osmosis
C. Heparin - interference with cell division (cytotoxic effect)
D. Dimercaprol (BAL) - chelation
E. Sulfonamides - competing with para-aminobenzoic acid



1.4 Each of the following types of receptors is correctly matched with an appropriate receptor-effector system or signal transduction pathway **EXCEPT**

A. Nicotinic receptors - ligand-gated ion channel
B. Muscarinic receptors - G protein-coupled effector systems
C. Steroid receptors - regulation of DNA transcription
D. α_2– receptors -stimulation of membrane-bound guanylate cyclase
E. Insulin receptors -stimulation of the receptor's tyrosine kinase activity

1.5 All of the following statements concerning "simple diffusion of drugs through lipid membranes" are true **EXCEPT** that

A. it occurs along a concentration gradient
B. it does not require cellular energy
C. it does not require carrier
D. the greater the lipid/water partition coefficient, the greater the rate of diffusion
E. ionized drug is lipid soluble and diffusible

1.6 All of the following statements concerning " passage of drugs across cell membranes" are correct **EXCEPT** that

A. facillitated diffusion does not require cellular energy
B. active transport is carrier-mediated
C. filtration is the passage of water soluble substances through pores in cell membranes
D. rate of simple diffusion is inversely proportional to the concentration gradient across the membrane
E. vitamine B_{12}-intrinsic factor complex is absorbed by pinocytosis.

1.7 Which of the following statements is **INCORRECT**?

A. Unionized drug is lipid-soluble and diffusible
B. Ionized drug is lipid-insoluble and non-diffusible
C. Weak base drugs are best absorbed in the intestine
D. Weak acid drugs become less ionised in an acidic medium
E. Acidification of urine enhances renal tubular reabsorption of weak base drugs

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1.8 Concerning charactersitics of "zero-order kinetics" which of the following is **CORRECT** ?

A. $t_{1/2}$ is constant
B. The rate of the process is proportional to the concentration of the drug
C. A constant amount of drug is eliminated per unit time
D. Log plasma concentration-time curve is linear
E. None of the above

1.9 Which of the following statements is **CORRECT** for a drug whose elimination from plasma obeys "first-order kinetics" ?

A. $t_{1/2}$ increases with dose
B. The elimination process can become saturable
C. A constant amount of drug is eliminated per unit time
D. The rate of elimination is proportional to the plasma concentration
E. None of the above

1.10 A drug showing first-order elimination kinetics from one compartment model has a $t_{1/2}$ of 6 hours. After 100 mg intravenously, 75 mg will be eliminated in

A. 30 hours
B. 24 hours
C. 18 hours
D. 12 hours
E. 9 hours

1.11 A highly irritant drug in the form of an aqueous solution is administered by

A. Subcutaneous injection
B. Intramuscular injection
C. Intravenous injection
D. Intrathecal injection
E. Intraperitoneal injection

1.12 Compared to ionized drug, "**unionized drug**" is
A. lipid insoluble.
B. non-diffusible
C. not reabsorbed in renal tubules
D. unable to cross the placenta
E. none of the above

1.13 Which of the following statements concerning characteristics of routes of drug administration is **INCORRECT** ?
A. Oral administration is not suitable for unconscicous patients.
B. Sublingual administration avoids first-pass metabolism.
C. Intramuscular adminstration requires sterile technique
D. Inhalation provides slow access to the general circulation
E. Intravenous administration provides 100% bioavailability.

1.14 A weak acid drug with a pKa = 4.4 is placed in a solution which has pH of 1.4 What is the ratio of *unionized to ionized drug?*
A. 10
B. 100
C. 1000
D. 10000
E. 100000

1.15 A drug, given as 100 mg single dose, results in a peak plasma concentration of 0.02 mg/ml. The apparent volume of distribution (V_d) is
A. 0.2 L
B. 0.5 L
C. 1 L
D. 2 L
E. 5 L

1.16 For a drug eliminated by first order kinetic, if 50% of the drug is eliminated in 30 minutes, so 75% will be eliminated in
A. 15 minutes
B. 1 ½ hr
C. 5 minutes
D. one hour
E. 45 minutes

1.17 Drugs which are highly lipid soluble
A. do not usually penetrate central nervous system
B. generally have very long elimination half lives
C. are readily excreted by kidney without prior metabolism
D. are not absorbed from gastro-intestinal tract
E. All of the above
F. None of the above

1.18 All of the following are possible consequences of phase I, or non synthetic, biotransformation reaction **EXCEPT**
A. production of a pharmacologically inactive metabolite
B. conversion of one pharmacologically active to another active substances
C. conversion of a pharmacologically inactive to an active substance
D. combination of a drug with an endogenous substance
E. production of a toxic metabolite

1.19 Drug bound to plasma protein is
A. pharmacologically active
B. diffusible through capillary walls
C. excreted by glomerular filtration
D. promptly metabolized by hepatic microsomal enzymes
E. a reservoir from which free drug can be dissociated

1.20 All of the following statements regarding drug metabolism are true **EXCEPT** that it.
A. occurs mainly in the liver
B. is impaired in premature babies
C. is slower in those who smoke than in those who do not
D. may convert an active drug into an active metabolite.
E. converts lipid soluble drugs into more polar compounds

1.21 Conjugation of a drug with glucuronic acid.
A. increases its water solubility
B. is an example of a phase I biotransformation reaction
C. involves cytochrome P-450
D. occurs in the same rate in adults and in the newborn
E. usually results in increased activity of the drug

1.22 Which of the following is an enzyme inducer ?

A. Cimetidine
B. Chloramphnicol
C. Phenobarbitone.
D. Oestrogens.
E. Allopurinol.

1.23 Which of the following can inhibit the activity of hepatic microsomal enzymes ?

A. Phenobarbitone.
B. Rifampicin
C. Tobacco smoking
D. Oestrogens
E. Androgens.

1.24 Which is **CORRECT**

A. Phase I reaction always inactivates drugs
B. Phase II reaction always inactivates drugs
C. t1/2 of a drug is half the time necessary for its elimination
D. Protamine sulphate and heparin demonstrate physiological antagonism
E. Rifampicin and cimetidine have opposite effect on liver microsomal enzymes

1.25 An exaggerated normal pharmacological response to the usual dose of the drug is termed

A. tolerance
B. intolerance
C. tachyphylaxis
D. idiosyncrasy
E. hypersensitivity

1.26 The ability of a drug to induce foetal malformation when given to a pregnant mother is termed

A. idiosyncrasy
B. tachyphylaxis
C. hypersensitivity
D. teratogenicity
E. mutagenicity

1.27 Allergic reactions to drugs can result in all of the following clinical manifestations **EXCEPT**

A. angioneurotic oedema
B. asthma
C. fever
D. peptic ulcer
E. photosensitivity

1.28 Which of the following may produce kernicterus in neonates by displacing bilirubin from its plasma albumin-binding sites?

A. Sulphonamides
B. Phenobarbitone
C. Theophylline
D. Paracetamol
E. Vitamin B6

1.29 Which of the following can induce acute hemolysis in patients with glucose-6-phosphate dehydrogenase deficiency in their red cells ?

A. Propranolol
B. Primaquine
C. Salbutamol
D. Atropine
E. Succinylcholine

1.30 Two drugs with the same effect are given togther the net effect produced is greater than the sum of their individual effects. This phenomenon is termed

A. potentiation
B. synergism
C. addition
D. cross tolerance
E. tachyphylaxis

1.31 Which of the following definitions is **INCORRECT** ?

A. Therapeutic index is equal to ED_{50} divided by LD_{50}

B. Plasma $t_{1/2}$ is the time taken for plasma drug concentration to be reduced by one half

C. Bioavailability is the fraction of unchanged drug reaching the systemic circulation following its administration by any route

D. Potentiation occurs if a drug lacking an affect of its own increases the effect of a second active drug

E. Idiosyncrasy is an abnormal reaction to a drug due to genetic abnormality

1.32 The maximum effect (E_{max}) achieved by a drug is a measure of

A. therapeutic index

B. efficacy

C. potency

D. antagonist magnitude

E. margin of safety

1.33 Hereditary deficiency of which of the following enzymes can lead to prolonged effect of succinylcholine ?

A. Glucose-6-phosphate dehydrogenase

B. Cytochrome P450 monooxygenase

C. δ-Amino-laevulinic acid (ALA) synthetase

D. Glucuronyl transferase

E. Plasma cholinesterase

1.34 Reversal of histamine-induced bronchoconstriction by adrenaline is regarded as

A. competitive antagonism

B. noncompetitive antagonism

C. chemical antagonism

D. physiological antagonism

E. antagonism by ion channel blockade

1.35 Which is not an idiosyncrasy reaction

A. Primaquine induced hemolysis in G-6-PD deficiency

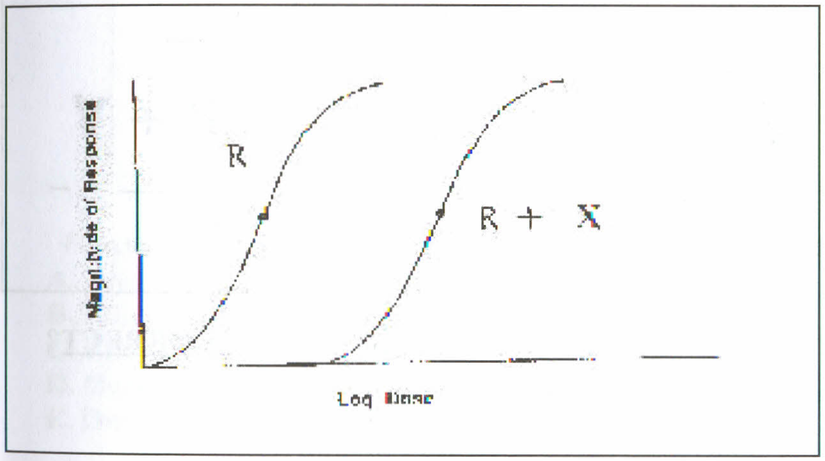
B. Isoniazid induced peripheral neuritis in slow acetylators

C. Propranolol induced bronchospasm in asthmatic patients

pnea induced by succinylcholine in defective butyrocholinesterase enzyme

E. Malignant hyperthermia induced by halothane and succinylcholine

1.36 The figure below shows the log dose response curves of drug R alone and drug R in presence of drug X



From the graph which of the following statements is **CORRECT** ?

A. Drug X decreases maximal efficacy of drug R

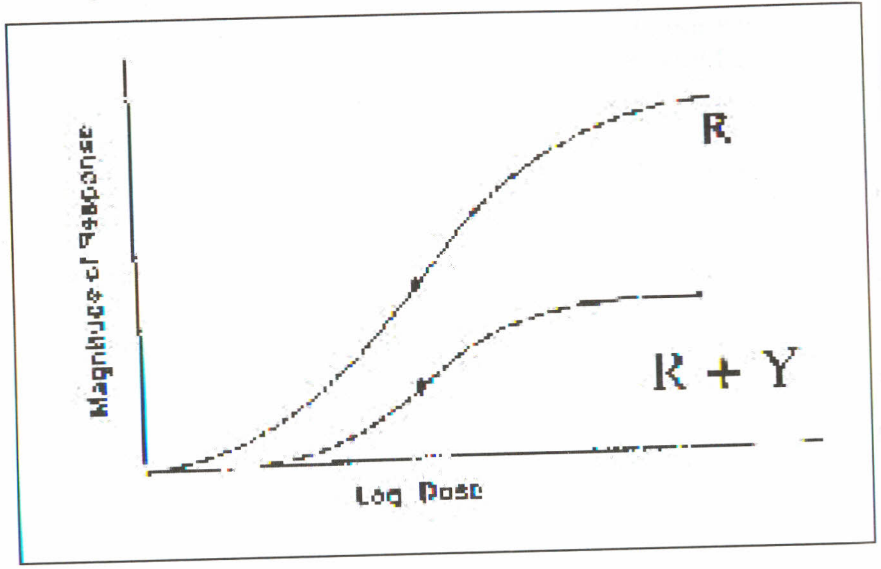
B. Drug X is a competitive antagonist of drug R.

C. Drug X is a noncompetitive antagonist of drug R

D. Drug X increases potency of drug R

E. None of the above

1.37 The figure below shows the log dose response curves of drug R alone and drug R in presence of drug Y



From the graph which of the following statements is **CORRECT**?

A. Drug Y increases potency of drug R.

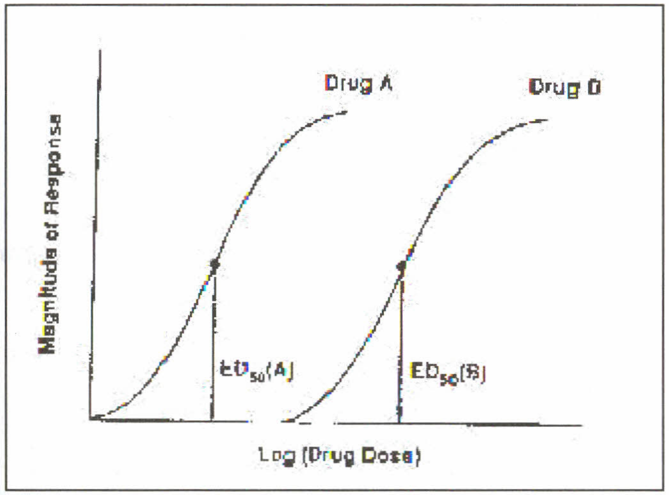
B. Drug Y increases maximal efficacy of drug R

C. Drug Y causes a parallel shift to the right of the log dose response curve of drug R

D. Drug Y is a competitive antagonist of drug R

E. Drug Y is noncompetitive antagonist of drug R

1.38 The figure below shows the log dose response curves for two drugs A and B



Fom the graph, which of the following statements is **CORRECT**?

A. Drug A and drug B have equal potency
B. Efficacy of drug A is more than that of drug B
C. Efficacy of drug B is more than that of drug A.
D. Drug A and drug B have equal efficacy
E. Drug B is more potent than drug A.

1.39 All the following statements are true **EXCEPT**

A. If a drug is 50% ionised and 50% unionised, the pH of its enviroment equals to its pKa.
B. Phenobarbital inhibits the enzymatic biotransformation of warfarin
C. Placebo is an inert preparartion intended to test whether the beneficial effects of a new drug are a result of psychological factors or not
D. The higher the therapeutic index, the safer the drug
E. A drug that is irritant to the stomach can be given by suppository

1.40 Each of the following drugs is correctly matched with an appropriate adverse reaction **EXCEPT**

A. Penicillin - anaphylactic shock
B. Streptomycin - ototoxicity
C. Isoniazid - malignant hyperthermia
D. Chlorpromazine - parkinsonism
E. Halothane - hepatotoxicity

1.41 Renal removal of amphetamine drug can be enhanced by administration

A. Ascorbic acid
B. Mannitol
C. Probenicid
D. Sodium bicarbonate
E. Sodium citrate

1.42 Which of the following would be the likely result of a decrease urinary pH?

A. Decreased urinary excretion of ephedrine
B. Increased urinary excretion of aspirin
C. Increased urinary excretion of amphetamine
D. Decreased urinary excretion of a nonionized drug
E. Increased urinary excretion of a completely ionized drug

Questions 2.1 - 2.87

For each of the following multiple choice questions select one answer that is the most appropriate

2.1 Parasympathetic stimulation produces

A. decrease in gastric motility
B. relaxation of detrusor muscle
C. constriction of pupil
D. inhibition of bronchial secretion
E. tachycardia

2.2 Which of the following statements is **INCORRECT**

A. control of blood pressure is mainly sympathetic activity
B. parasympathetic system is required for life
C. sympathetic system control secretion of adrenal medulla
D. Postganglionic fibres of parasympathetic division are long compared to those of sympathetic system
E. All of the above

2.3 Full activation of sympathetic nervous system produces all of the following **EXCEPT**

A. bronchodilatation
B. tachycardia
C. decreased intestinal motility
D. mydriasis
E. contraction of detrusor muscle of the urinary bladder

2.4 Stimulation of postganglionic sympathetic fibres innervating sweat glands leads to the release of

A. norepinephrine
B. epinephrine
C. acetylcholine
D. histamine
E. serotonin

[illegible] "the thinking"

2.5 Alpha-adrenoceptor stimulation produces all of the following **EXCEPT**
- **A.** constriction of cutaneous blood vessels
- **B.** dilatation of skeletal muscle blood vessels
- **C.** contraction of dilator pupillae muscle
- **D.** contraction of trigone and sphincter of urinary bladder
- **E.** ejaculation of semen

2.6 All of the following structures respond to beta adrenoceptor stimulation **EXCEPT**
- **A.** dilator pupillae muscle
- **B.** bronchial smooth muscle
- **C.** blood vessels of skeletal muscle
- **D.** SA node
- **E.** AV node

2.7 Stimulation of beta$_1$-adrenoceptors produces
- **A.** bronchodilatation
- **B.** dilatation of skeletal muscle blood vessels
- **C.** increased force and rate of cardiac contraction
- **D.** mydriasis
- **E.** Contraction of pregnant human uterus

2.8 Stimulation of beta$_2$-adrenoceptors produces
- **A.** lipolysis
- **B.** constriction of blood vessels of skin and mucous membranes
- **C.** inhibition of transmitter release
- **D.** bronchodilatation
- **E.** Increased renin release

2. 9 Transport of choline into cholinergic terminals is inhibited by
- **A.** α-methyl tyrosine
- **B.** d-tubocurarine
- **C.** hemicholinium
- **D.** botulinum toxins
- **E.** hexamethonium

2.10 The following drug interferes with storage of acetylcholine in nerve terminals
- **A.** Pilocarpine
- **B.** Triethyl choline
- **C.** Norepinephrine
- **D.** Vesamicol
- **E.** botulinum toxins

2.11 True cholinesterase hydrolyzes
- **A.** pilocarpine
- **B.** succinylcholine
- **C.** carbachol
- **D.** methacholine
- **E.** bethanechol

2.12 Postoperative retention of urine in absence of organic obstruction may be treated with
- **A.** DFP
- **B.** bethanechol
- **C.** ephedrine
- **D.** atropine
- **E.** propranolol

2.13 Which of the following drugs has muscarinic and nicotinic actions and is extremely resistant to hydrolysis by both true and pseudo-cholinesterase?
- **A.** Succinylcholine
- **B.** Acetylcholine
- **C.** Methacholine
- **D.** Carbachol
- **E.** Bethanechol

2.14 Anticholinestrase drugs will potentiate effect of
A. Acetylcholine
B. Carbachol
C. Methacholine
D. Succinylcholine
E. a, c
F. a, c, d

2.15 Pilocarpine
A. is degraded by acetylcholinestrase enzyme
B. can not enter to brain
C. binds selectivity to nicotinic receptors
D. is used to lower intraocular pressure
E. decreases salivary and sweat secretion

2.16 Neostigmine
A. exacerbates tubocurarine toxicity
B. decreases acetylcholine level at motor end plate
C. has a shorter duration than edrophonium
D. is contraindicated in bronchial asthma
E. produces bowel hypomotility

2.17 All of the following statements concerning neostigmine are correct **EXCEPT** that
A. it is a quaternary ammonium compound
B. it is a reversible anticholinesterase
C. it does not penetrate the blood brain barrier
D. it is used for prevention of motion sickness
E. it reverses neuromuscular blockade produced by competitive neuromuscular blocking agents

2.18 Each of the following parasympathomimetic drugs is correctly matched with an appropriate therapeutic use **EXCEPT**
A. Neostigmine - renal colic
B. Physostigmine - glaucoma
C. Pyridostigmine - myasthenia gravis
D. Metrifonate - Urinary schistosomiasis
E. Bethanechol - postoperative nonobstructive urinary retention

2.19 Which of the following drugs is an anticholinesterase that can be used in treatment of Alzheimer's disease ?
A. Propantheline
B. Benztropine
C. Dihydroergotamine
D. Memantine
E. Galantamine

2.20 Pilocarpine can produce all of the following effects in man **EXCEPT**
A. diaphoresis
B. lacrimation
C. bronchoconstriction
D. pupillary constriction
E. xerostomia

2.21 Comparison of bethanechol and pilocarpine shows that
A. both are hydrolyzed by cholinesterase
B. both activate muscarinic receptors directly
C. both inhibit acetylcholinesterase
D. both activate nicotinic receptors in motor end plates
E. both are not absorbed from G.I.T.

2.22 All of the following drugs have nicotinic actions **EXCEPT**
A. carbachol
B. bethanechol
C. acetylchloine
D. physostigmine
E. neostigmine

2.23 Which of the following is a direct acting muscarinic receptor agonist

A. DFP
B. Echothiophate
C. Physostigmine
D. Neostigmine
E. Bethanechol

2.24 – 2.29 For each of the following choose the appropriate answer

A. Pyridostigmine
B. Pralidoxime
C. Ecothiophate
D. Edrophonium
E. Ipratropium
F. Pilocarpine
G. Donepezil

2.24 Used to differntiate between myasthenic and cholinergic crisis

2.25 Irreversible anticholinesterase used to treat open angle glaucoma

2.26 Used to treat myasthenia gravis

2.27 Used in early stages of organophosphorus poisoning to reactivate inhibited cholinesterase enzyme

2.28 Quaternary amine used in bronchospasm

2.29 Tried in treatment of Alzheimer's disease

2.30 All of the following drugs can block the action of acetylcholine o muscarinic receptors **EXCEPT**

A. atropine
B. scopolamine
C. oxyphenonium
D. edrophonium
E. ipratropium

2.31 Atropine produces all of the following actions **EXCEPT**

A. reduced tone and mtility of GIT
B. reduced gastric acid secretion
C. reduced sweat secretion
D. reduced bronchial secretion
E. bronchoconstriction

2.32 Adverse effects of atropine include all of the following **EXCEPT**

A. marked sweating
B. dry mouth
C. tachycardia
D. cutaneous flushing especially in children
E. retention of urine in patients with enlarged prostate

2.33 All of the following can be blocked by atropine pretreatment **EXCEPT**

A. bradycardia caused by vagal stimulation
B. bradycardia induced by methacholine
C. bradycardia induced by an intravenous infusion of noradrenaline
D. skeletal muscle relaxation induced by tubocurarine
E. increased salivary secretion induced by pilocarpine.

2.34 All of the following drugs are alkaloids obtained from plants **EXCEPT**

A. atropine
B. scopolamine
C. pilocarpine
D. amphetamine
E. physostigmine

2.35 Atropine is used in treatment of

A. ventricular tachycardia
B. acute parathion poisoning
C. open-angle glaucoma
D. postoperative retention of urine
E. insulin hypoglycaemia

2.36 Hyoscine (scopolamine) produces all of the following actions
EXCEPT
- **A.** amnesia
- **B.** antimotion sickness
- **C.** mydriasis and cycloplegia
- **D.** skeletal muscle weakness
- **E.** sedation

2.37 All of the following are pharmacological actions of nicotine small dose
EXCEPT
- **A.** stimulation of autononmic ganglia
- **B.** stimulation of chemoreceptors in carotid and aortic bodies
- **C.** stimulation of adrenal medulla
- **D.** stimulation of CNS
- **E.** diuretic action

2.38 Nicotinic receptors in autonomic ganglia are blocked by
- **A.** Carbachol
- **B.** Trimethaphan
- **C.** Hemicholinium
- **D.** Bethanechol
- **E.** α-Methyl tyrosine

2.39 Regarding trimethaphan, which of the following statements
INCORRECT ?
- **A.** It is a depolarizing ganglion blocker
- **B.** It is administered by intravenous drip
- **C.** It has a very short duration of action
- **D.** It releases histamine
- **E.** It is used to produce controlled hypotension in anaesthesia

2.40 Each of the following types of receptors is appropriately matched with the response resulting from its stimulation **EXCEPT**
- **A.** α_1-adrenoceptors - contraction of vascular smooth muscle
- **B.** α_2-adrenoceptors - decreased insulin secretion
- **C.** β_1-adrenoceptors - increased renin secretion
- **D.** β_2-adrenoceptors - contraction of dilator pupillae muscle
- **E.** β_3-adrenoceptors - lipolysis

2.41 Which of the following is a natural catecholamine?
- **A.** Dobutamine
- **B.** Dopamine
- **C.** Isoprenaline
- **D.** Phenylephrine
- **E.** Ephedrine

2.42 Which of the following is a directly acting agonist of β_1 and β_2-adrenoceptors ?
- **A.** Phenylephrine
- **B.** Noradrenaline
- **C.** Isoprenaline
- **D.** Terbutaline
- **E.** Amphetamine

2.43 Depletion of noradrenaline stores completly abolishes the action of
- **A.** adrenaline
- **B.** noradrenaline
- **C.** dobutamine
- **D.** phenylephrine
- **E.** tyramine

.44 Which of the following sympathomimetic is not a catecholamine ?
- **A.** Adrenaline
- **B.** Noradrenaline
- **C.** Isoprenaline
- **D.** Dopamine
- **E.** Amphetamine

2.45 Which of the following sympathomimetics is of plant origin ?
A. Adrenaline
B. Noradrenaline
C. Ephedrine
D. Isoprenaline
E. Amphetamine

2.46 Adrenaline produces all of the following actions **EXCEPT**
A. positive inotropic effect
B. constriction of cutaneous blood vessels
C. bronchodilatation
D. contraction of pregnant human uterus during the last month of pregnancy and at parturition
E. decrease in plasma potassium level

2.47 Metabolic effects of adrenaline include all of the following **EXCEPT**
A. increased hepatic glycogenolysis
B. increased lipolysis
C. increased oxygen consumption
D. decreased blood lactate level.
E. decrease in plasma potassium level

2.48 Which of the following is not a therapeutic use of adrenaline ?
A. To prolong the action of local anaesthetics
B. To stop epistaxis
C. To restore cardiac activity in cardiac arrest
D. To treat anaphylactic shock
E. To relieve variant angina.

2.49 All of the following are cardiovascular effects of noradrenaline infusion in man **EXCEPT**
A. an increase in both systolic and diastolic pressures
B. an increase in peripheral resistance
C. reflex bradycardia
D. dilatation of skeletal muscle blood vessels
E. an insignificant change or a decrease in cardiac output

2.50 Intravenous infusion of noradrenaline is used to produce
A. bronchodilatation
B. vasodilatation
C. relaxation of uterus
D. an increase in systolic & diastolic blood pressure
E. CNS stimulation.

2.51 Isoprenaline has all of the following pharmacological actions **EXCEPT**
A. a decrease in total peripheral resistance
B. an increase in cardiac output
C. an increase in diastolic pressure
D. relaxation of bronchial smooth muscle
E. relexation of gastrointestinal smooth muscle.

.52 Tachycardia and marked elevation of systolic pressure occur after administration of
A. adrenaline
B. noradrenaline
C. phenylephrine
D. methoxamine
E. salbutamol

53 Which of the following drugs can be used in treatment of cardiogenic shock following acute myocardial infraction ?
A. Ritodrine
B. Amphetamine
C. Dopamine
D. Adrenaline
E. Orciprenaline

2.54-2.58 For each of the following chose the suitable answer

A. Modafinil
B. Pseudoephedrine
C. Salmeterol
D. Ritodrine
E. Dipivefrin
F. Naphazoline

2.54 Used as a tocolytic in premature labour
2.55 Used in treatment of narcolepsy
2.56 Prodrug used to treat glaucoma
2.57 Decongestant which is effective orally
2.58 Long acting inhaler bronchodilator

2.59 Tachyphylaxis occurs with repeated administration of

A. adrenaline
B. ephedrine
C. noradrenaline
D. phenylephrine
E. isoprenaline

2.60 All of the following drugs are used as nasal decongestants **EXCEPT**

A. tolazoline
B. naphazoline
C. xylometazoline
D. tetrahydrozoline
E. pseudoephedrine

2.61 α_1-adrenoceptors are blocked selectively by

A. yohimbine
B. doxazosin
C. clonidine
D. phentolamine
E. ergometrine

2.62 Phenoxybenzamine blocks

A. isoprenaline induced tachycardia
B. salbutamol induced bronchodilatation
C. phenylephrine induced vasoconstriciton
D. ritodrine induced uterine relaxation
E. adrenaline induced increase in blood concentration of free fatty acids

2.63 The pressor effect of adrenaline can be reversed by

A. guanethidine
B. propranolol
C. reserpine
D. clonidine
E. phentolamine

2.64 Pretreatment with phentolamine blocks

A. vasoconstriction induced by noradrenaline
B. positive inotropic effect induced by adrenaline
C. bronchodilatation induced by terbutaline
D. uterine relaxation induced by isoprenaline
E. renal vasodilatation induced by dopamine

2.65 Which of the following effects of adrenaline would be blocked by phentolamine ?

A. Relaxation of bronchial smooth muscle
B. Cardaic stimulation
C. Contraction of dilator pupillae muscle
D. Relaxation of the uterus
E. Stimulation of lipolysis

2.66 Phentolamine has the following pharamcological actions **EXCEPT**

A. alpha-receptor blocking action
B. histmaine-like action
C. cardiac stimulant action
D. anti-serotonin action
E. vasoconstrictor action

2.67 Propranolol produces all of the following actions **EXCEPT**

A. reduction in heart rate
B. reduction in plasma renin
C. reduction in myocardial oxygen consumption
D. reversal of the pressor effect of adrenaline
E. slowing of AV conduction

2.68 β-adrenoceptor blockers may be used in treatment of all of the following **EXCEPT**

A. hypertension
B. suparaventricular & ventricular arrhythimas
C. AV block
D. open-angle glaucoma
E. hypertrophic obstructive cardiomyopathy

2.69 Adverse reactions of β-adrenoceptor blockers include all of the following **EXCEPT**

A. bronchospasm
B. hypotension
C. AV block
D. parkinsonism
E. cold extremities.

2.70 Vasodilatation caused by isoprenaline can be blocked by

A. trasylol
B. atenolol
C. metoprolol
D. nadolol
E. prazosin

2.71 Renal vasodilatation induced by dopamine can be antagonized by

A. phenoxybenzamine
B. propranolol
C. metoprolol
D. atropine
E. none of the above

2.72 About metoprolol, all of the following are correct **EXCEPT** that

A. it is a β_1-selective adrenergic receptors antagonist
B. it is extensively metabolized in the liver
C. it has intrinsic sympathomimetic activity
D. its plasma half life in 3-4 hours
E. it is used for treatment of hypertension

2.73 About esmolol, which is correct

A. it is a β_1-selective adrenergic receptors antagonist
B. it lacks membrane stabilizing activity
C. it is given by I.V. infusion
D. it is rapidly hydrolyzed by esterases in erythrocytes
E. All of the above

2.74 Concerning β-adrenergic receptor antagonists, all of the following are true **EXCEPT** that

A. Nadolol is largely excreted unchanged in urine
B. Pindolol has intrinsic sympathomimetic activity
C. Acebutolol is a selective β_1-adrenoceptor antagonist
D. Propranolol lacks membrane stabilizing activity
E. Timolol is a non-selective β-adrenoceptor antagonist

2.75 Which of the following β-adrenergic blockers is β_1-selective (cardioselective) and lacks both local anaesthetic and intrinsic sympathomimetic activity ?

A. Acebutolol
B. Atenolol
C. Timolol
D. Nadolol
E. Pindolol

2.76 The following B-blocker has an additional vasodilator effect
- **A.** Carvedilol
- **B.** Atenolol
- **C.** Timolol
- **D.** Pindolol
- **E.** Nadolol

2.77-81 Match each characteristic to the autonomic drug with which it is associated

- **77** Atenolol
- **78** Prazosin
- **79** Pirenzepine
- **80** Gallamine
- **81** Yohimbine

- **A.** M_1- selective blocker
- **B.** M_2 - selective blocker
- **C.** α_1 - selective blocker
- **D.** α_2 - selective blocker
- **E.** β_1 - selective blocker
- **F.** β_2 - selective blocker

2.82 The following are "competitive antagonists" **EXCEPT**
- **A.** Prazosin and noradrenaline
- **B.** Scopolamine and acetylcholine
- **C.** Propranolol and isoprenaline
- **D.** Adrenaline and histamine
- **E.** Timolol and salbutamol

2.83 All of the following drugs are muscarinic antagonists **EXCEPT**
- **A.** cyclopentolate
- **B.** ipratropium
- **C.** terbutaline
- **D.** propantheline
- **E.** hyoscine butyl bromide

2.84 Which of the following statements is **CORRECT** ?
- **A.** Activation of both β_1- and β_2-receptors results in inhibition of adenylate cyclase.
- **B.** Phenylephrine is a selective β_2-adrenergic agonist
- **C.** Fenoldopam stimulates D_1 receptors
- **D.** Pirenzepine selectively blocks M_2-receptors
- **E.** Physostigmine can not pass through the blood brain barrier.

Questions 3.1 - 3.14

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

3.1 All of the following drugs can be used as eye drops to reduce intra ocular pressure in glaucoma **EXCEPT**
A. Timolol
B. Echothiophate
C. Pilocarpine
D. Atropine
E. Apraclonidine

3.2 Physostigmine instilled in the conjunctival sac produces all of the following effects **EXCEPT**
A. miosis
B. cycloplegia
C. lowering of intraocular pressure
D. lacrimation
E. twitches of eye lids

3.3 Anticholinesterase agents instilled in the conjunctival sac will cause all of the following effects **EXCEPT**
A. miosis
B. contraction of ciliary muscle
C. conjunctival hyperaemia
D. lowering of intraocular pressure in patients with glaucoma
E. loss of corneal reflex

3.4 Local instillation of atropine in the conjunctival sac produces all of the following effects **EXCEPT**
A. mydriasis
B. cycloplegia
C. a reduction in intraocular pressures in patients with glaucoma
D. loss of light reflex
E. reduction of lacrimal secretion

3.5 Which of the following drugs produces mydriasis without cycloplegia following its topical application to the eye?
A. Atropine
B. Scopolamine
C. Phenylephrine
D. Tropicamide
E. Cyclopentolate

3.6 Which of the following drug is used as eye drops to lower the intraocular pressure in patients with glaucoma?
A. Edrophonium
B. Pyridostigmine
C. Metrifonate
D. Muscarine
E. Pilocarpine

3.7 Which of the following drugs does not change the size of the pupil nor the tone of the ciliary muscle and is used as eye drops in treatment of open-angle glaucoma?
A. Pilocarpine
B. Physostigmine
C. Timolol
D. Echothiophate
E. Demecarium

3.8 All of the following drugs can be used as eye drops in treatment of open-angle glaucoma **EXCEPT**
A. timolol
B. adrenaline
C. echothiophate
D. tropicamide
E. pilocarpine

3.9 The following is alpha$_2$-agonist used locally on eye to treat glaucoma
A. Brimonidine
B. Dipivifrin
C. Pilocarpine
D. Ecothiophate
E. Dorzolamide

3.10 Tropicamide produces its mydriatic effect via
A. block of muscarinic receptors in ciliary muscle
B. block of muscarinic receptors in constrictor pupillae muscle
C. stimulation of α_1-adrrenoceptors in dilator pupillae muscle
D. inhibition of uptake-1 of noradrenaline
E. inhibition of monoamine oxidase enzyme

3.11 Which of the following drugs produces mydriasis with loss of lig reflex when locally instilled in the eye?
A. Carbachol
B. Adrenaline
C. Phenylephrine
D. Timolol
E. Tropicamide

3.12 All of the following drugs affect pupil size **EXCEPT**
A. Ecothiophate
B. Homatropine
C. Physostigmine
D. Cocaine
E. Timolol

3.13 Which of the following drugs is a carbonic anhydrase inhibitor used locally as eye drops in treatment of glaucoma?
A. Apraclonidine
B. Timolol
C. Dipivefrin
D. Brinzolamide
E. Echothiophate

3.14 All of the following drugs produce cycloplegia when applied locally to the eye **EXCEPT**
A. Homatropine
B. Scopolamine
C. Cyclopentolate
D. Tropicamide
E. Timolol

Indicate True (T) or False (F)

3.15 Corticosteroids may produces cataract if used systemically for long periods

3.16 Dipivefrin is a prodrug of adrenaline which penetrates the cornea more efficiently than adrenaline.

3.17 Atropine can precipitate an acute attack of glaucoma

3.18 Phenylephrine is used as eye drops for producing mydriasis and cycloplegia

3.19 Pilocarpine lowers intraocular pressure by increasing outflow of aqueous humor

3.20 Dorzolamide lowers intraocular pressure by decreasing formation of aqueous humor

Questions 4.1 - 4.10

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

4.1 Which of the following drug is a competitive antagonist at the neuromuscular junction nicotinic cholinoceptor ?

A. Succinylcholine
[✓ **B.**] Atracurium
C. Mecamylamine
D. Echothiophate
E. Dantrolene

4.2 All of the following are pharmacological actions of tubocurarine **EXCEPT**

A. competitive (non-depolarzing) neuromuscular blocking action
B. histamine release
C. no effect on CNS in men
D. fall in blood pressure
[✓ **E.**] blockade of muscarinic receptors in the heart

4.3 Which of the following is the last to be paralyzed by tubocurarine ?

A. eye muscle
B. small muscles of face
C. muscles of limbs
D. intercostal muscles
[✓ **E.**] diaphragm

4.4 Competitive antagonists at neuromuscular junction nicotinic cholinoceptors include all of the following **EXCEPT**

A. pancuronium
B. alcuronium
C. vecuronium
[✓ **D.**] suxamethonium
E. atracurium

4.5 Competitive neuromuscular blockers can be antagonized by

A. pancuronium
B. gallamine
C. neostigmine
D. pilocarpine
E. bethanechol

4.6 Neuromuscular blockade from non-depolarizing muscle relaxants is augmented by all of the following **EXCEPT**

A. edrophonium
B. halothane
C. enflurane
D. isoflurane
E. streptomycin

4.7 All of the following statements concerning succinylcholine are correct **EXCEPT** that it

A. is a depolarizing neuromuscular blocker
B. produces relaxation preceeded by muscle fasciculations
C. has a short duration of action
D. decreases intraocular pressure
E. may cause malignant hyperthermia in patients receiving halthoane

4.8 All of the following are side effects of succinylcholine **EXCEPT**

A. apnoea
B. postoperative muscle pain
C. increased intraocular pressure
D. malignant hyperthermia
E. hypokalaemia

4.9 The following drug produces skeletal muscle relaxation by stimulatin alpha-2 receptors
- **A.** Diazepam
- **B.** Clonazapam
- **C.** Tizanidine
- **D.** Baclofen
- **E.** Dantrolene

4.10 The release of calcium from sarcoplamic reticulum of skeletal muscl is prevented by
- **A.** dantrolene
- **B.** tubocurarine
- **C.** baclofen
- **D.** succinylcholine
- **E.** pyridostigmine

4.11-15 Match each of the following drugs to the action with which it is associated

4.11 pancuronium
4.12 Succinylcholine
4.13 Neostigmine
4.14 Baclofen
4.15 Trimethaphan

A. $GABA_B$ agonist
B. $GABA_B$ antagonist
C. Depolarizing neuromuscular blocker
D. Competitive neuromuscular blocker
E. Reversible anticholinesterase
F. Competitive ganglion blocker

4.16-21 Indicate True (T) or False (F)

4.16 Atracurium does not depend on renal or hepatic elimination

4.17 Pancuronium releases histamine

4.18 Gallamine blocks cardiac muscarinic receptors (M2)

4.19 Succinylcholine is hydrolyzed by true cholinesterase

4.20 Mephenesin is a competitive neuromuscular blocker

4.21 Dantrolene is used in treatment of malignant hyperthermia

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Questions 5.1 - 5.20
For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

5.1 The major pathway of histamine metabolism is
- **A.** reduction
- **B.** methylation
- **C.** hydrolysis
- **D.** hydroxylation
- **E.** conjugation with glucuronic acid

5.2 H_1- receptor activation produces all of the following **EXCEPT**
- **A.** bronchoconstriction
- **B.** contraction of intestinal smooth muscle
- **C.** an increase in intracellular calcium
- **D.** stimulation of gastric acid secretion
- **E.** stimulation of sensory nerve endings mediating pain and itching

5.3 Which of the following drugs releases histamine ?
- **A.** Ketanserin
- **B.** Morphine
- **C.** Betazole
- **D.** Methysergide
- **E.** Sumatriptan

5.4 All of the following are potent stimulants of gastric secretion **EXCEPT**
- **A.** betazole
- **B.** pentagastrin
- **C.** gastrin
- **D.** prostaglandin E_2
- **E.** histamine

5.5 H_1 - Antagonists may produce all of the following actions **EXCEPT**
A. anticholinergic
B. antiemetic
C. antipyretic
D. antiparkinsonism
E. local anaesthetic

5.6 Which of the following drugs blocks H_1 and 5-HT receptors?
A. Chlorpheniramine
B. Cyclizine
C. Meclizine
D. Cyproheptadine
E. Cimetidine

5.7 Which of the following is a non-sedating H_1 - antihistaminic drug?
A. Dimenhydrinate
B. Diphenhydramine
C. Promethazine
D. Cyclizine
E. Fexofenadine

5.8 H_1 - Antagonists are used in treatment of
A. epilepsy
B. narcolepsy
C. hypertension
D. allergic rhinitis
E. peptic ulcer

5.9 Adverse effects of H_1 - receptor antagonists include all of the following
EXCEPT
A. anticholinergic effects
B. allergic reaction
C. teratogenic effects
D. sedation
E. parkinsonism

5.10 Serotonin (5-HT) stores in the CNS are depleted by
A. guanethidine
B. scopolamine
C. reserpine
D. nadolol
E. neostigmine

5.11 5-Hydroxy-indole acetic acid is the major metabolite of
A. histamine
B. angiotensin II
C. serotonin
D. bradykinin
E. prostaglanin E_2

5.12 Approximately 90% of body's serotonin is found in
A. platelets
B. CNS
C. mast cells
D. enterochromaffin cells of GIT
E. juxtaglomerular cells of the kidney

5.13 Which of the following statement is **CORRECT** regarding sumatriptan?
A. it is effective in treatment of acute attacks of migraine
B. it is a selective 5-HT_{1D} receptor antagonist
C. it is used in prophylaxis of migraine
D. it is given i.v.
E. it is effective in treatment of angina pectoris

5.14 Which of the following do not synthesize 5-HT but acquire it from their environment by a high affinity 5-HT uptake mechanism ?
A. Enterochromaffin cell GIT
B. Basophils
C. Platelets
D. Lymphocytes
E. Monocytes

5.15 All of the following autacoids produce bronchospasm **EXCEPT**
A. histamine
B. serotonin
C. leukotrienes LTC_4 and LTD_4
D. prostaglandin F_2-alpha
E. prostaglandin E_2

5.16 All of the following autacoids are potent vasodilators **EXCEPT**
A. bradykinin
B. substance P
C. endothelin
D. prostacyclin (PGI2)
E. platelet-activating factor (PAF)

5.17 Salicylates inhibit which of the following enzymes ?
A. Phospholipase A_2
B. Phospholipase C
C. Phosphodiesterase
D. Lipoxygenase
E. None of the above

5.18 Saralasin is an antagonist of
A. serotonin
B. bradykinin
C. vasopressin
D. angiotensin II
E. substance P

5.19 Which of the following inhibits platelet aggregation ?
A. Serotonin
B. Thromboxane A_2 (TXA_2)
C. Prostacyclin (PGI_2)
D. Platelet-activating factor (PAF)
E. Adenosine diphosphate (ADP)

5.20 A polypeptide that causes increased capillary permeability and edema is
A. captopril
B. saralasin
C. angiotensin II
D. bradykinin
E. vasopressin

5.21 An agent useful in treatment of acute attacks of migraine is
A. phenoxybenzamine
B. ergotamine
C. methysergide
D. propranolol
E. amitriptyline

5.22 All of the following drugs may be used for prophylaxis of migraine **EXCEPT**
A. propranolol
B. amitrptyline
C. clonidine in small dose
D. methysergide
E. reserpine

5.23 An agent useful in prevention and treatment of postpartum haemorrhage is
A. methylergometrine
B. methysergide
C. dihydroergotoxine
D. dihydroergotamine
E. ritodrine

5.24-30 Match each statement about drug action with the drug

5.24 stimulates aldosterone secretion

5.25 inhibits kininase II enzyme

5.26 blocks angiotensin (AT_1) receptors

5.27 inhibit release of arachidonic acid

5.28 used in prophylaxis of motion sickness

2.29 inhibits prostaglandins synthesis by inhibiting cyclooxygenase enzyme

5.30 inhibits conversion of angiotensin-1 into angiotensin II

A. Indomethacin

B. Captopril

C. Glucocorticoids

D. Angiotensin II

E. Dimenhydrinate

F. Valsartan

5.31-45 Indicate True (T) or False (F)

5.31 Histamine decreases capillary permeability

5.32 Histamine-induced stimulation of gastric acid secretion is mediated via activation of H_1- receptors

5.33 H_2- receptor stimulation is associated with inhibition of adenylat cyclase.

5.34 H_1- receptor antagonists are useful in urticaria

5.35 H_2- receptor antagonists are useful in peptic ulcer

5.36 Histamine-induced vasodilatation is mediated chiefly by H_1 and t a lesser extent by H_2- receptors

5.37 5-HT penetrates the blood brain barrier

5.38 The brain contains enzymes necessary for biosynthesis and destruction of 5-HT

5.39 Excretion of 5-HIAA is increased after MAO inhibitors

5.40 Chronic use of methysergide may induce retroperitoneal fibrosis

5.41 Cyproheptadine is used as an anorexigenic agent

5.42 Bradykinin is inactivated by kallikrein enzyme

5.43 Serotonin is inactivated by monoamine oxidase (MAO)

5.44 Angiotensin II is inactivated by angiotensin converting enzyme (

5.45 Prostaglandin E_2 increases renin secretion

Questions 6.1-6.48

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

6.1 Which of the following drugs is effective in control of hypertension as well as in prophylaxis of migraine?

A. Indapamide
B. Clonidine
C. Hydralazine
D. Minoxidil
E. Captopril

6.2 Which of the following antihypertensive drugs reduces blood pressure by activation of central alpha$_2$-adrenoceptors ?

A. Guanethidine
B. Reserpine.
C. Trimethaphan
D. Prazosin
E. Clonidine

6.3 Life-threating hypertensive crisis can result from sudden withdrawal of

A. Prazosin
B. Nifedipine
C. Captopril
D. Clonidine
E. Hydrochlorothiazide

6.4 Indapamide is used in treatment of

A. angina pectoris
B. cardiac dysrhythmias
C. hypertension
D. acute pulmonary oedema
E. coronary thrombosis

6.5 Which of the following drugs produces most of its antihypert effect by blocking alpha$_1$-adrenoceptors in arterioles and veins?
A. Hydrochlorothiazide
B. Hydralazine
C. Minoxidil
D. Prazosin
E. Atenolol

6.6 Which of the following antihypertensive drugs produces tachycard
A. Clonidine
B. Nifedipine
C. Atenolol
D. Reserpine
E. Captopril

6.7 Captopil produces all of the following **EXCEPT**
A. inhibition of angiotensin converting enzyme
B. inhibition of degradation of bradykinin
C. inhibition of secretion of aldosterone
D. reflex sympathetic stimulation
E. lowering of blood pressure in hypertensive patients

6.8 Angiotensin converting enzyme inhibitors are contraindicated in
A. hypertension
B. congestive heart failure
C. bilateral renal artery stenosis
D. diabetes mellitus
E. angina pectoris

6.9 Minoxidil produces
A. dilatation of arterioles but not veins
B. bradycardia
C. decrease in cardiac output
D. decrease in plasma renin
E. stimulation of central $\alpha 2$-adrenoceptors

6.10 Diazoxide produces all of the following actions **EXCEPT**
A. dilatation of arterioles
B. tachycardia
C. hyperglycaemia
D. hyperuricaemia
E. diuresis

6.11 Correct statement concerning adverse effects of antihypertensive agents include all of the following **EXCEPT** that
A. hydralazine can induce lupus erythematosus like syndrome
B. diazoxide causes sodium & water retention.
C. clonidine causes xerostomia
D. reserpine can causes proteinuria
E. minoxidil causes hypertrichosis.

6.12 All of the following drugs may be used in hypertensive emergency **EXCEPT**
A. Furosemide
B. Nifedipine
C. Sodium nitroprusside
D. Labetalol
E. Pindolol

6.13 For monotherapy of mild hypertension all of the following are suitable **EXCEPT**
A. Atenolol
B. Varapamil
C. Losartan
D. Hydralazine
E. Hydrochlorothiazide

6.14 Which of the following drugs depletes catcholamine stores in
in sympathetic nerve endings ?
A. Guanethidine
B. Reserpine
C. Clonidine
D. Propranolol
E. Phenylpropanolamine

6.15 Side effect of reserpine include all of the following **EXCEPT**
A. psychic depression
B. diarrhoea
C. activation of peptic ulcer
D. weight loss
E. parkinsonism

6.16 About reserpine all of the following is correct **EXCEPT** that
A. it is effective orally
B. it is passes the blood brain barrier
C. it inhibits dopa-decarboxylase enzyme
D. it causes bradycadia
E. it is used in hypertension

6.17 All of the following are side effects of guanethidine **EXCEPT**
A. postural hypotension
B. failure of ejaculation
C. nasal congestion
D. parkinsonism
E. diarrhoea

6.18 All of the following are toxic effects of methyldopa **EXCEPT**
A. sedation
B. drug fever
C. hepatits
D. haemolytic anaema
E. prolonged vasopasm leading to gangrene

6.19 All of the following are selective α_2- adrenergic agonists in the CNS **EXCEPT**
A. clonidine
B. α-methylnoradrenaline
C. guanfacine
D. guanethidine
E. guanabenz

6.20 In therapy of congestive heart failure, the most important pharmacological action of digitalis is its ability to
A. produce diuresis
B. decrease venous pressure
C. increase myocardial contractile force
D. slow conduction in AV node
E. increase myocardial excitability

6.21 Therapeutic doses of cardiac glycosides produce all the following actions **EXCEPT**
A. an increase in intracellular Ca^{++} in cardiac cells
B. An increase in effective refactory period of AV node
C. A decrease in effctive refactory period of ventricles
D. Shortening of Q-T interval in the ECG.
E. A decrease in vagal tone to the heart.

6.22 Theraputic doses of digoxin given to a patient with congestive heart failure produce all the following actions on the heart **EXCEPT**
A. a positive intropic effect.
B. a positive chronotropic effect
C. Slowing of conduction in AV node
D. Increased cardiac output.
E. Reduced heart size.

6.23 Digitalis glycosides are used in all of the following co
EXCEPT
A. Atrial fibrillation
B. Atrial flutter
C. Paroxysmal atrial tachycardia
D. Paroxysmal ventricular tachycardia
E. Congestive heart failure

6.24 The positive inotropic action of cardiac glycosides may be the r
inhibition of
A. Phosphodiesterase
B. Phospholipase A2
C. Phospholipase C
D. Membrane bound Na^+ - K^+ activated ATPase
E. Adenylate cyclase.

6.25 The ECG of a patient who is receiving digitals in therapeuti
range would show
A. Prolongation of Q-T interval
B. Prolongation of P-R interval
C. Widening of QRS complex
D. Tall peaked T waves
E. None of the above

6.26 Digoxin differs from digitoxin in that digoxin
A. has a longer half life
B. is more compeletely absorbed from G.I.T.
C. is more extensively bound to plasma proteins
D. is largely excreted unchanged in urine.
E. is largely metabolized by the liver.

6.27 Which of the following statements is **INCORRECT** concernin
pharmacokinetics of digitoxin?
A. its oral bioavailability is 90-100%
B. its plasma protein binding is 95%
C. its half life is 7 days
D. its therapeutic plasma concentration is 0.5-2 ng/mL.
E. it is largely metabolized by hepatic microsomal enzymes.

6.28 All of the following measures can be used in treatment of digoxin-induced cardiac dysrhythmias **EXCEPT**.
A. Stopping digoxin administration
B. Phenytoin administration
C. Lidocaine administration.
D. Electrical cardioversion
E. Fab fragments of digoxin-specific antibody

6.29 All of the following predispose to digoxin toxicity **EXCEPT**
A. hypokalaemia
B. hypomagnesaemia
C. hypocalcaemia
D. hypothyroidism
E. impired kidney function.

6.30 Actions of amrinone and milrinone include all of the following
EXCEPT
A. positive inotropic
B. vasodilator
C. inhibition of phosphodiesterase enzyme
D. inhibition of Na^+-K^+ activated ATPase
E. Increased inward of Ca^{++} flux during the action potential

6.31 The preferred agent to combat extreme digitalis overdose is
A. Potassium
B. Calcium
C. Phenytoin
D. Fab fragments of digoxin specific monoclonal antibodies
E. Magnesium

6.32 Actions of nitroglycerin include all of following **EXCEPT**
A. coronary vasodilatation
B. venodilatation
C. relaxation of biliary tract smoth muscle
D. increased pulse pressure.
E. tachycardia

6.33 Calcium channel blocking drugs could be used in treatment of al following **EXCEPT**

A. hypertension
D. angina pectoris
C. migraine
D. paroxysmal supraventricular tachycardia
E. partial atrioventricular block

6.34 Verapamil produce all of the following action **EXCEPT**

A. decrease in myocardial contractile force
D. decrease in heart rate
C. decrease in AV nodal conduction
D. decrease in afterload
E. bronchoconstriction

6.35 The calcium channel blocker of choice in treatment of cerebral vasospasm following subarachnoid haemorrhage is

A. isradipine
B. nicardipine
C. nimodipine
D. nitrendipine
E. amlodipine

6.36 B-receptor antagonists are beneficial in angina pectoris becaus produce all of the following **EXCEPT**

A. slow heart rate
B. lower blood pressure
C. buffer the heart against sympathetic stimulation
D. cause peripheral vasodilatation
E. reduce myocardial contractility

6.37 Which of the following antiarrhythmic agents is **INCORRECTLY** matched by class.

A. Lidocaine - class IB
B. Phenytoin - class IC
C. Propranolol - class II
D. Bretylium - Class III
E. Verapamil - Class IV

6.38 Which of the following drugs is capable of producing a syndrome that resembles systemic lupus erythematosus?

A. Digoxin
B. Minoxidil
C. Procainamide
D. Reserpine
E. Disopyramide.

6.39 The drug of choice in treatment of ventricular arrythmias complicating acute myocardial infarction is

A. lidocaine
B. digoxin
C. verapamil
D. quinidine
E. atropine

6.40 All of the following statements are accurate **EXCEPT**

A. Quinidine blocks of Na^+ channels
B. Disopyrmide has atropine-like action
C. Lidocaine prolongs the duration of the action potential
D. Phenytoin is used as a cardiac antidysrhythmic as well as an antiepileptic drug
E. Amiodarone has antiarrhythmic and antianginal effects.

6.41 Which of the following antiarrhythmics has class I, II, III and IV activity?

- **A.** Quinidine
- **B.** Lidocaine
- **C.** Disopyramide
- **D.** Verapamil
- **E.** Amiodarone

6.42 Cinchonism is caused by large doses of

- **A.** quinidine
- **B.** lidocaine
- **C.** propranolol
- **D.** amiodarone
- **E.** verapamil

6.43-6.48 For each of the following choose the suitable answer

- **A.** Valsartan
- **B.** Carvedilol
- **C.** fenoldopam
- **D.** Varapamil
- **E.** Enalapril
- **F.** Sodium nitroprusside
- **G.** Sildenafil
- **H.** Atenolol

6.43 Dopamine receptor agonist used in emergency hypertension

6.44 Class IV antiarrhythmic drug in supravantricular arrhythim

6.45 Combined alpha$_1$ + B blocker which can be effective in some c

HF

6.46 Orally effective AT1 receptor blocker for treatment of hypertens

6.47 Sodium thiosulphate administration reduces one of its toxic eff

6.48 Dangerous interaction in patients taking nitroglycerin

6. 49 - 6.70 Indicate True (T) or False (F)

6.49 Digoxin increases effective refractory peroid in AV node

6.50 Digoxin in therapeutic doses stimulates vagal centre in medulla

6.51 Cardiac glycosides are used to abolish atrial fibrillation and restore normal sinus rhythm

6.52 Digitalis may convert atrial flutter into atrial fibrillation

6.53 Diuretic effect of digitalis in heart failure is mainly due to increased cardiac output and renal blood flow

6.54 Toxic serum concentration of digoxin is > 2 ng/mL

6.55 Digitalis does not exert its positive inotropic effect in patients receiving reserpine

6.56 Rifampicin inhibits metabolism of digitoxin by hepatic microsomal enzymes

6.57 Hypokalaemia predisposes to digitalis toxicity

6.58 Hypothyroidism increases the liklihood of digitalis toxicity

6.59 Hyperthyroid patients may require larger doses of digitalis to achieve a therapeutic effect

6.60 Lidocaine is recommended for supraventricular arrhythmias

6.61 In absence of congestive heart failure, digitalis is indicated in most cases of atrial fibrillation

6.62 Quinidine increases cardiac contractility

6.63 Quinidine reduces renal clearance of digoxin

6.64 Verapamil is useful in management of supraventricular arrhythmias

6.65 Verapamil increases plasma digoxin concentration

6.66 Ca^{++} channel blockers are useful in both Prinzmetal's (variant) angina and angina of effort.

6.67 Captopril inhibits renin release

6.68 Hydralazine is used in management of angina pectoris

6.69 Hydralazine may cause lupus erythematosus-like syndrome

6.70 Sodium nitroprusside is a combined arteriolar and venous dilator.

Questions 7.1- 7.20

Answers Page 130

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

7.1 The principal renal site of action of
- **A.** triamterene is in the thick ascending limb of Henle's loop
- **B.** spironolactone is in the descending limb of Henle's loop
- **C.** frusemide is in the proximal tubule
- **D.** thiazides is in the early distal tubule
- **E.** bumetanide is in the late distal tubule.

7.2 Which of the following statements about diuretics is **INCORRECT** ?
- **A.** High-celling diuretics inhibit NaCl reabsorption in the thick ascending limb of the loop of Henle.
- **B.** Loop diuretics can increase the rate of urine flow in acute renal failure
- **C.** Carbonic anhydrase inhibitors decrease the rate of aqueous humor formation.
- **D.** Triamterene inhibits potassium secretion in the distal tubule.
- **E.** Spironolactone inhibits NaCl re-absorption in proximal tubules.

7.3 Thiazides increase renal excretion of all of the following **EXCEPT**
- **A.** Na^+
- **B.** Cl^-
- **C.** K^+
- **D.** Ca^{++}
- **E.** Mg^{++}

7.4 Thiazides are used in treatment of all of the following **EXCEPT**
- **A.** essential hypertension
- **B.** edema due to congestive heart failure
- **C.** idiopathic hypercalciuria
- **D.** nephrogenic diabetes insipidus
- **E.** hyperuricaemia.

7.5 Hydrochlorothiazide produces all of the following actions **EXCEPT**
- **A.** diuresis
- **B.** antihypertensive
- **C.** hyperchloraemic acidosis
- **D.** increased serum cholesterol
- **E.** reduced polyuria and polydipsia in patients with nephrogenic diabetes insipidus.

7.6 The most useful agent in the management of hypercalciuria in patients who have recurrent urinary calculi composed of calcium salts is
- **A.** mannitol
- **B.** frusemide
- **C.** spironolactone
- **D.** hydrochlorothiazide
- **E.** acetazolamide

7.7 Which of the following diuretics is useful in treatment of acute pulmonary edema ?
- **A.** Frusemide
- **B.** Hydrochlorothiazide
- **C.** Spironolactone
- **D.** Triamterene
- **E.** Acetazolamide

7.8 Adverse effect of furosemide include all of the following **EXCEPT**
- **A.** hypercalcaemia
- **B.** hyperlipidemia
- **C.** hypokalaemia
- **D.** ototoxicity
- **E.** hypotension and dehydration.

7.9 Mannitol is used in treatment of
A. acute pulmonary edema.
B. hyperkalaemia
C. acutely raised intracranial or intraocular pressure
D. primary or secondary hyperaldosteronism
E. idiopathic hypercalciuria

7.10 Hyperkalaemia is a contraindication to use which of the following drugs ?
A. Acetazolamide
B. Chlorothiazide
C. Ethacrynic acid
D. Chlorthalidone
E. Spironolactone

7.11 All of the following diuretics can produce hypokalaemia **EXCEPT**
A. bumetanide
B. ethacrynic acid
C. amiloride
D. hydrochlorothiazide
E. frusemide

7.12 Acetazolamide increases urinary excretion of the following **EXCEP**
A. Na$^+$
B. K$^+$
C. HCO_3^-
D. Cl$^-$
E. water

7.13 Acidification of urine can be achieved by :
A. Sodium bicrbonate
B. Potassium citrate
C. Sodium citrate
D. Ammonium chloride
E. Acetazolamide

7.14 Methylxanthines produce all of the following **EXCEPT**
A. an increase in cardiac output
B. an increase in renal blood flow
C. an increase in glomerular filtration rate.
D. inhibition of carbonic anhydrase
E. inhibition of renal tubular reabsorption of Na$^+$ & Cl$^-$

7.15 Which of the following drugs can cause hyperchloraemic metabolic acidosis?
A. Ethacrynic acid
B. Hydrochlorothiazide
C. Acetazolamide
D. Mannitol
E. Theophylline

7.16 Adverse effects associated with furosemide include the following **EXCEPT**
A. Hyperglycemia
B. Tinnitus
C. Fluid and electrolyte imbalance
D. Metabolic acidosis
E. Hypotension

7.17 Which of the following reduces hypertonicity of renal medulla?
A. Bumetanide
B. Spironolactone
C. Triamtrene
D. Hydrochlorothiazide
E. Frusemide
F. A + E
G. None of the above

7.18-7.20 For each of the following choose the proper answer

7.18 Decreases urinary chloride excretion
7.19 Reduces elevated intraocular pressure
7.20 Chemically it is steroid

A. Spironolactone
B. Indapamide
C. Amiloride
D. Acetazolamide
E. Diazoxide

Indicate True (T) or False (F)

7.21 Ammonium chloride causes hyperchloraemic metabolic acidosis

7.22 Acetazolamide increases renal potassium loss

7.23 Carbonic anhydrase inhibitors cause an alkaline urine to be formed

7.24 Amiloride is a competitive antagonist of aldosterone

7.25 Ethacrynic acid may cause deafness

7.26 Thiazide diuretics are uricosuric

7.27 Thiazides improve carbohydrate tolerance in diabetics

7.28 Thiazides may precipitate hepatic coma in patients with liver cirrhos

7.29 Spironolactone is a competitive antagonist of aldosterone.

7.30 Triamterene inhibits K^+ secretion in the distal tubule

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uestions 8.1-8.73

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate

The main cause of death from an opioid overdose is
A. respiratory depression.
B. seizures.
C. constipation
D. hypertensive crisis
E. hypoglycemia

All of the following are endogenous opioid peptides **EXCEPT**
A. met-enkephalin.
B. leu-enkephalin.
C. β - endorphin.
D. dynorphin A and B.
E. phencyclidine.

All of the following are naturally occurring opium alkaloids **EXCEPT**
A. Morphine.
B. Codeine.
C. Meperidine.
D. Papaverine.
E. Narcotine (noscapine).

Effects of morphine on the CNS include all of the following **EXCEPT**
A. analgesia.
B. miosis.
C. respiratory depression.
D. inhibition of ADH ralease.
E. depression of cough reflex.

Questions 12.1 - 12.18

For Each Of The Following Multiple Choic Questions Select One Answer That Is The Most Appropriate.

12.1 Which of the following statements is **CORRECT** regarding salbutamol?
- A. It is a selective B_2-adrenoreceptor antagonist
- B. It is not metabolized by COMT but by MAO.
- C. It is administered sublingually.
- D. Tachycardia and muscle tremors may ocur as side effects.
- E. It inhibits adenyl cyclase enzyme.

12.2 Which of the following statements is **INCORRECT** regarding salbutamol?
- A. It produces minimal action on the heart rate if used in therapeutic doses.
- B. It causes bronchodilatation.
- C. It is effective when swallowed.
- D. It contracts uterine smooth muscle.
- E. It causes skeletal muscle tremors.

12.3 Pharmacologic effects of β_2-selective adrenoceptor agonist drugs include all of the following **EXCEPT** .
- A. relaxation of bronchial smooth muscle.
- B. inhibition of mediator release from mast cells.
- C. vasoconstriction
- D. activation of adenylate cyclase enzyme.
- E. enhanced mucociliary function.

12.4 Which of the following β_2-adrenoceptor agonists has a prolonged duration of action (about 12 hours)?
- A. Salbutamol
- B. Salmeterol
- C. Terbutaline
- D. Fenoterol
- E. Bitolterol

2.5 Theophylline is a competitive antagonist at which of the following receptors?
- A. adenosine receptors
- B. muscarinic receptors
- C. $beta_2$- receptors
- D. H_1-receptors
- E. 5-HT_2-receptors

12.6 Adverse effects associated with the use of theophylline include all of the following **EXCEPT**
- A. nausea and vomiting
- B. convulsions
- C. cardiac arrhythmias
- D. hypotension
- E. sedation

12.7 Plasma clearance of theophylline is reduced by all of the following **EXCEPT**
- A. erythromycin
- B. ciprofloxacin
- C. phenytoin
- D. heart failure
- E. hepatic cirrhosis

12.8 Which of the following statements concerning ipratropium bromide is **INCORRECT**?
- A. It is muscarinic receptor antagonist
- B. It does not decrease mucociliary clearance of bronchial secretions.
- C. It is given by aerosol inhalation
- D. It does not cross blood-brain barrier
- E. It has H_1 blocking effect

12.9 Sodium cromoglycate (cromolyn sodium) is
- A. completely absorbed from GIT
- B. effective in terminating acute asthmatic attacks
- C. a direct relaxant of airway smooth muscle
- D. given by inhalation for prophylaxis of bronchial asthma
- E. a competitive antagonist at adenosine receptors

0 Which is correct regarding Nedocromil
A. it is a competitive antagonist at adenosine receptors
B. it is a direct relaxant of airway smooth muscles
C. it inhibits phosphodiesterase enzyme
D. it is completely absorbed orally
E. it is used to prevent acute attacks of asthma

1 Inhaled glucocorticoids used in bronchial asthma include all of the following **EXCEPT**
A. beclomethasone dipropionate
B. budesonide
C. prednisolone
D. flunisolide
E. fluticasone

2 Inhaled glucocorticoids produce the following adverse effect
A. tremors
B. oropharyngeal candidiasis
C. tachycardia
D. drowsiness
E. nausea and vomiting

3 In status asthmaticus (severe acute asthma), it is dangerous to use the following **EXCEPT**
A. Morphine
B. Barbiturates
C. Intravenous adrenocorticosteroids
D. Propranolol
E. Nadolol

4 Central antitussives include all of the following **EXCEPT**
A. noscapine
B. pholcodine
C. codeine
D. diphenoxylate
E. dextromethorphan

12.15 Concerning dextromethorphan hydrobromide all of the following are true **EXCEPT** that it
A. is a central antitussive
B. is non-addictive
C. is a powerful analgesic
D. does not inhibit mucociliary clearance
E. does not produce constipation

12.16 Which of the following is a nauseant expectorant?
A. Tincture ipecacuanha
B. Acetylcysteine
C. Bromhexine
D. Pholcodine
E. Benzonatate

12.17 Bromhexine is prescribed to
A. reduce viscosity of bronchial secretion
B. stimulate respiratory center
C. depress cough center
D. suppress appetite
E. relieve colonic spasm

12.18 Cyanide toxicity is due to
A. complexing of cytochrome oxidase by CN^- ion
B. combining with haemoglobin to form carboxyhaemoglobin
C. converting haemoglobin to methaemoglobin
D. causing massive haemolysis of RBCs
E. depleting glutathione

- 12.26 Indicate True or False (F).

$t_{1/2}$ of theophylline is decreased in heavy cigarette smokers.

Nedocromil prevents antigen-induced release of histamine and other autacoids from sensitized mast cells.

Aminophylline stimulates the enzyme phosphodiesterase.

Histamine (H_1) receptor blockers are effective in treatment of acute asthmatic attacks.

Potassium iodide is a central antitussive.

Methadone is a non-addicting antitussive.

Montelukast blocks cysteinyl leukotriene receptors.

Aminophylline stimulates adenosine receptors

Questions 13.1 - 13.60

For Each Of The Following Multiple Choice Questions Select One Answer That Is The Most Appropriate.

13.1 Actions of TSH on thyroid gland include
A. increased size and vascularity
B. increased synthesis and release of T4 and T3
C. increased iodide uptake
D. hyperplasia of thyroid cells
E. All of the above

13.2 Effects of thyroid hormones include all of the following **EXCEPT**
A. increaed oxygen consumption
B. essential for growth and development
C. increased cardiac rate and output
D. increased sensitivity to catecholamines
E. increased plasma cholesterol

13.3 Concerning thyroxine (T4) all of the following are true **EXCEPT** that
A. it is effective orally
B. its biologic $t_{1/2}$ is 7 day
C. it is converted to T3 and rT3 in peripheral tissues
D. it is extensively bound to plasma proteins
E. it is 4 times more potent than T3

13.4 Uptake of plasma iodide by thyroid follicle cells is inhibited by
A. TSH
B. perchlorate
C. propylthiouracil
D. propranolol
E. calcitonin

13.5 Unwanted effects of thyroxine include all of the following **EXCEPT**
A. anginal pain
B. tremor
C. agranulocytosis
D. diarrhea
E. weight loss